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M/EB 128/65
21 April 1965
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MEMORANDUM FOR: Chief, Forces Division, ORR

ATTENTION: [REDACTED]
Defensive Missiles Branch

THROUGH: Chief, Requirements Branch, Reconnaissance Group, CGS

FROM: Chief, Photographic Intelligence Division, CIA

SUBJECT: Launch Complex A Electronics, Sary Shagan Antimissile
Test Center

REFERENCES: (a) Requirements Supplement 1 to C-RR3-80,551 and
C-RR3-80,730
(b) CIA/PID Projects 30004-5 and 30005-5
Supplement 1

1. This memorandum is in response to paragraph 3 b. of your requirement dated 31 March 1965 which requests description, mensuration, sketch, and identification of radars located at Electronic Site B, Launch Complex A, SSATC, USSR. Also requested is the extent of similarity to radars noted at the Leningrad Northwest Complex.

2. The radar arrays at Electronic Site "B" (radars designated "B1", "B2", and "B3") were analyzed, from Mission 4015 (Mar 65), with optical equipment and an electronic sensing device. The optical equipment included an advanced Micro-stereoscope with very sensitive gray scale definition components. The electronic device utilized is a double beam densitometer which produces isodensimetric drawings. The requestor is cautioned as to the true value and/or interpretation of such experimental density studies, since standards have not been set on known installations. The analyst on this project is not skilled in deciphering density contours, but he has made an attempt to incorporate them in a preliminary analysis of the radar arrays. The analyst felt that very little interpretation could have been accomplished with standard viewing equipment, since the radars and their respective shadows are only visible in their gross features.

All dimensions were made by the PID analyst utilizing scales set by the Technical Intelligence Division, NPIC. These dimensions are not to be construed as official NPIC measurements.

25X1

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3. With optical viewing equipment, all three radar arrays at Electronic Site "B" appear similar (See Attachment 1). Electronic studies reinforced this impression. Since radar array "B1" provided the best opportunity to study the structure of the array, all optical analysis was performed from "B1" (See Attachment 2). Electronic studies of "B1" include spot widths of 25 M (Microns), 20 M, and 15 M, all with wedge diameters of 0.04 and magnifications of 1000 X (See Attachments 3, 4, and 5). An electronic study was performed on "B2" with a spot width of 15 M, wedge diameter of 0.04, and a magnification of 1000 X (See Attachment 6). Attachments 2-6 are at the same scale and can be overlaid to note similarities and dissimilarities.

4. Radar array "B1" consists of at least three suspect antennas attached to a heavy support structure which is mounted on top of a Van. Two suspect feeds, possibly for additional non-visible reflectors, are suspended on either side of the array. The dimensions of the van are [redacted] and 10 feet in height. The width is undetermined because the van is hidden by the array. The bottom of the array is [redacted] above the roof of the van. The major portion of the antenna array appears rectangular when viewed from overhead and measures 30 feet in length [redacted]. The shadow of the array indicates at least two suspect antennas are present (suspect antennas "A" and "B"), and that the overall height [redacted].

Suspect antenna "A" appears to have a vertical peel configuration with a [redacted]. The analyst was considering the possibility of two reflectors within the confines of "A". Analysis of Attachments 2, 3, and 4 indicates that the principal support for "A" is in the mid-section and that the small dense areas toward both tips are speculated to be plates for rigid braces.

Suspect antenna "B" appears optically as a vertical peel, [redacted], and offset from the main structural section of the array, i.e., - an "outrigger". Electronic analysis of this antenna does not indicate any sharp density gradient between the array structure and the suspect antenna. The reason for this is not understandable. Electronic analysis does indicate a lobe of denser material leading toward the suspect antenna (i.e. - a support brace), however the density tapers off evenly to the image border.

Suspect antenna "C" is attached by a horizontal boom to a bottom corner of the array structure. From optical shadow analysis, the antenna appears to be a circular parabolic mesh reflector. The dashed-line drawing of this antenna on Attachment 2 is meant to show its location, not its configuration or size.

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Electronic analysis of this antenna on Attachments 3 and 4 reinforces the optical shadow analysis. For unknown reasons, the antenna does not appear on the 15 Micron drawing (See Attachment 5). No dimensions are listed for this antenna due to the lack of coherent image limits.

Suspect feeds "A" and "B" are diametrically opposed from the central section of the array when viewed from overhead. They are estimated to be in the upper half of the array when viewed from the side. They appear to be long aperture feeds, 5 feet in width, and suggest back-to-back reflectors. Normally, scanning devices of this type could suggest horizontal trough reflectors. The reflectors for these feeds are not optically nor electronically visible.

5. Optical and electronic analysis of radar array "B2" indicates that it is similar in general configuration and mensuration to array "B1". Electronic analysis (See Attachment 6) shows a similar heavy central section with mid-section support to antenna "A", a lobe for support for feed "A", two dense spots for antenna A, and a lobe for antenna "C". A difference noted is that the top of antenna "A" appears to be squared while the base appears to be ellipsoidal.

6. Limited optical analysis was performed on radar array "B3", since the array shadow fell on nearby vans which disrupted the pattern. The portions of the shadow useful for interpretation indicated a similarity to arrays "B1" and "B2".

7. The radars at the NW Leningrad Complex have not been photographed with image quality comparable to those discussed above. Analysis of available photography indicates a general shadow configuration similarity to Electronic Site "B" Radar Arrays.

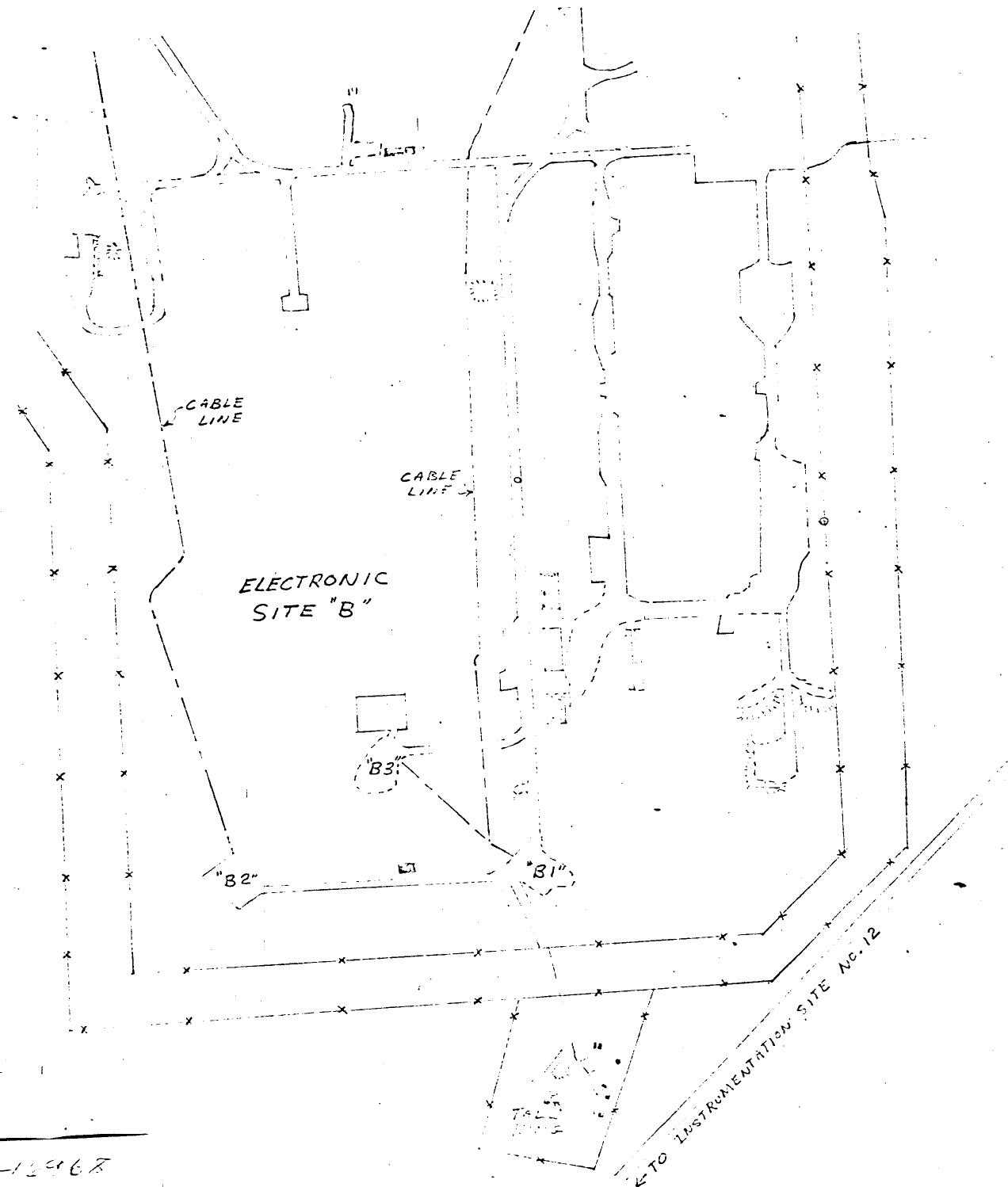
The radar arrays at Electronic Site "B" cannot be identified as to type or function from available photography and/or present density analysis experience.

[REDACTED]

9. This project, in reply to paragraph 3 b. of Supplement 1 to your basic requirements, is considered complete.

Enclosures:
Six line drawings (CIA/PID/MEB-P-181/65
thru 186/65)

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ATTACHMENT 1

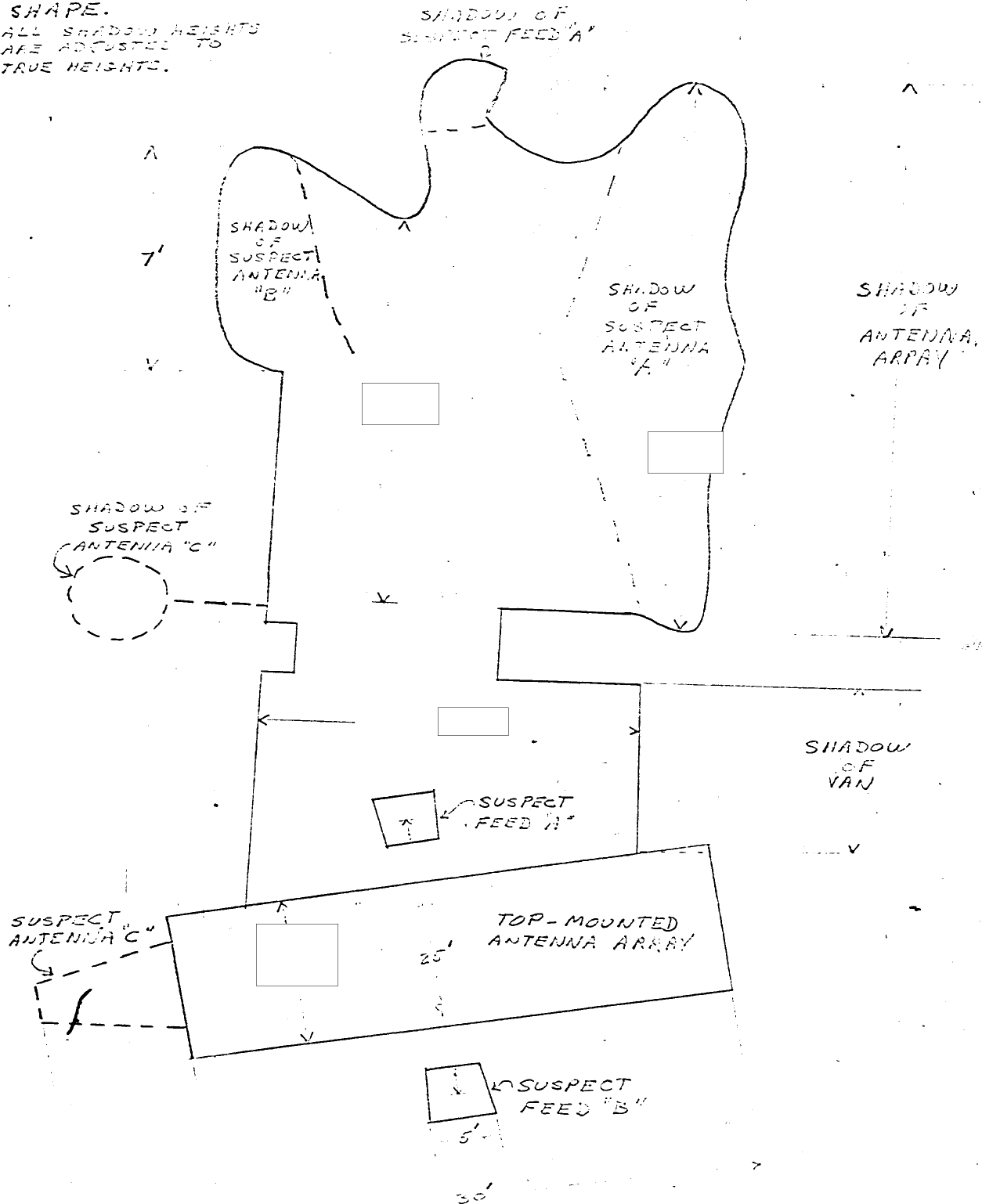
TOP SECRET RUFF

CIA/PID/MEB-P-181/65
ATTACHMENT TO:
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25X1

NOTE
ALL SHADOWS ARE
DEPICTED AS GROUND
SHAPE.
ALL SHADOW HEIGHTS
ARE ADJUSTED TO
TRUE HEIGHTS.

LEACH COMPLEX A
STATE, USSR



ATTACHMENT 2

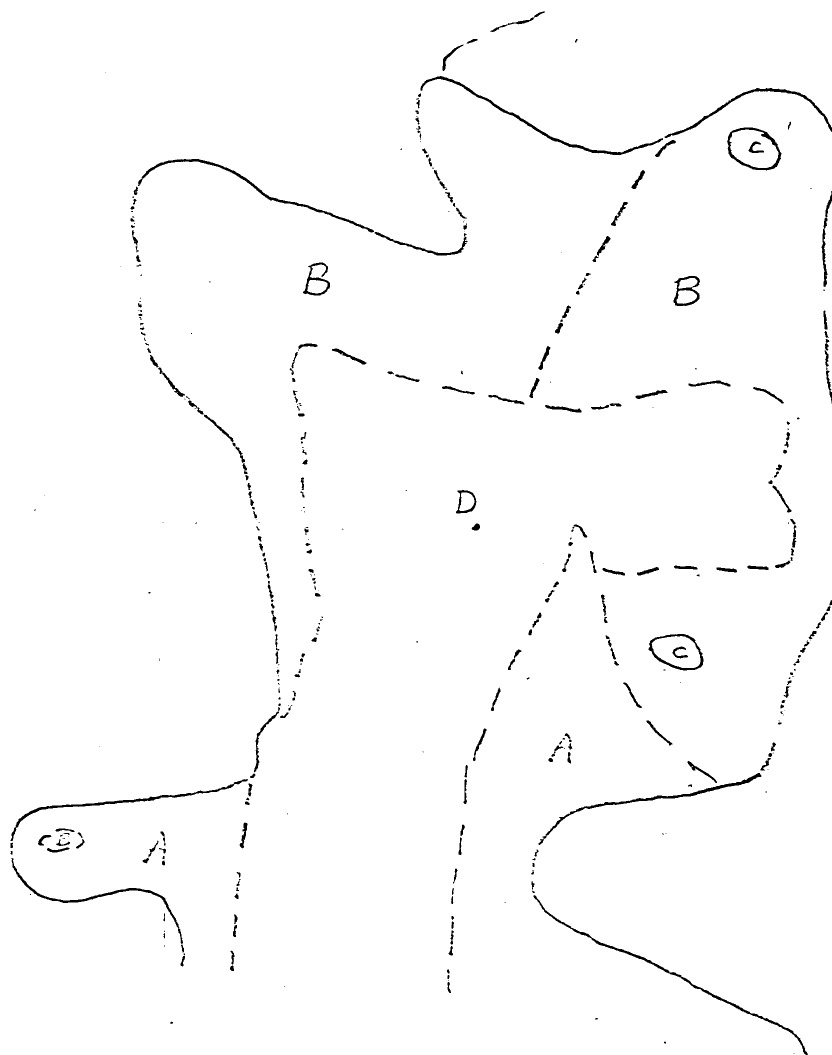
TOP SECRET RUFF

CIA/PID/MEB-P-182/65
ATTACHMENT TO:

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RADAR ARRAY (S)
LAUNCH COMPLEX A
SSATC, USSR

PRELIMINARY ANALYSIS
OF
DENSITY CONTOURS



DENSITY GRADIENT

← LIGHTER
A - B - C - D
DARKER →

SPOT WIDTH - 25 μ
EDGE DIAM. - 0.04
MAGNIFICATION - 1000 X

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ATTACHMENT 3

TOP SECRET RUFF

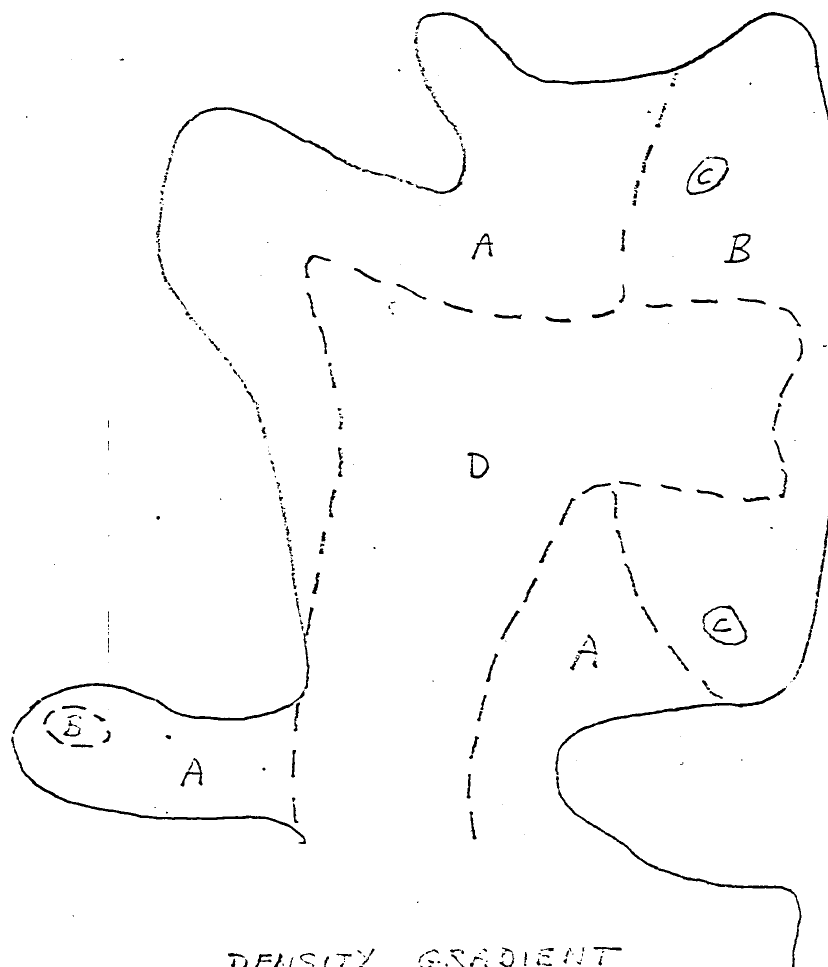
CIA/PID/MEB-P-183/65
ATTACHMENT TO:

M/EB 128/65

25X1

LAUNCH COMPLEX A
SSATC, USSR

PRELIMINARY ANALYSIS
OF
DENSITY CONTOURS



DENSITY GRADIENT

<-LIGHTER

A - B - C - D

DARKER ->

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SPOT WIDTH - 20M
WEDGE DIAM. - 0.04
MAGNIFICATION - 1000X

ATTACHMENT 4

TOP SECRET RUFF

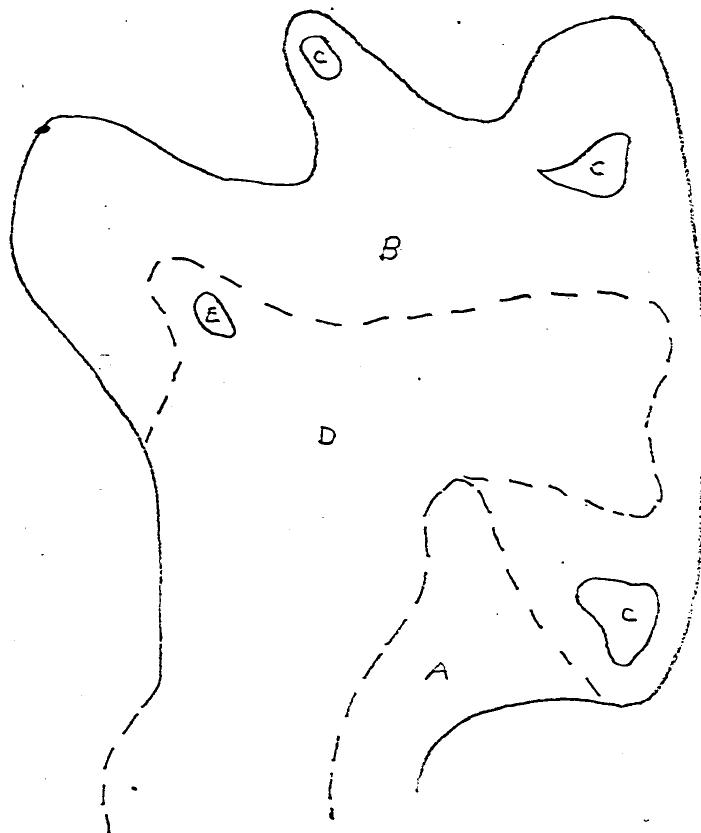
CIA/PID/MEB-P-184/65
ATTACHMENT TO:

M/EB 128/65

25X1

RADAR ARRAY 51
LAUNCH COMPLEX A
SSATC, USSR

PRELIMINARY ANALYSIS
OF
DENSITY CONTOURS



DENSITY GRADIENT

← LIGHTER

A-B-C-D-E

DARKER →

SPOT WIDTH - 15M
WEDGE DIAM. - 0.04
MAGNIFICATION - 1000 X

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ATTACHMENT 5

TOP SECRET RUFF

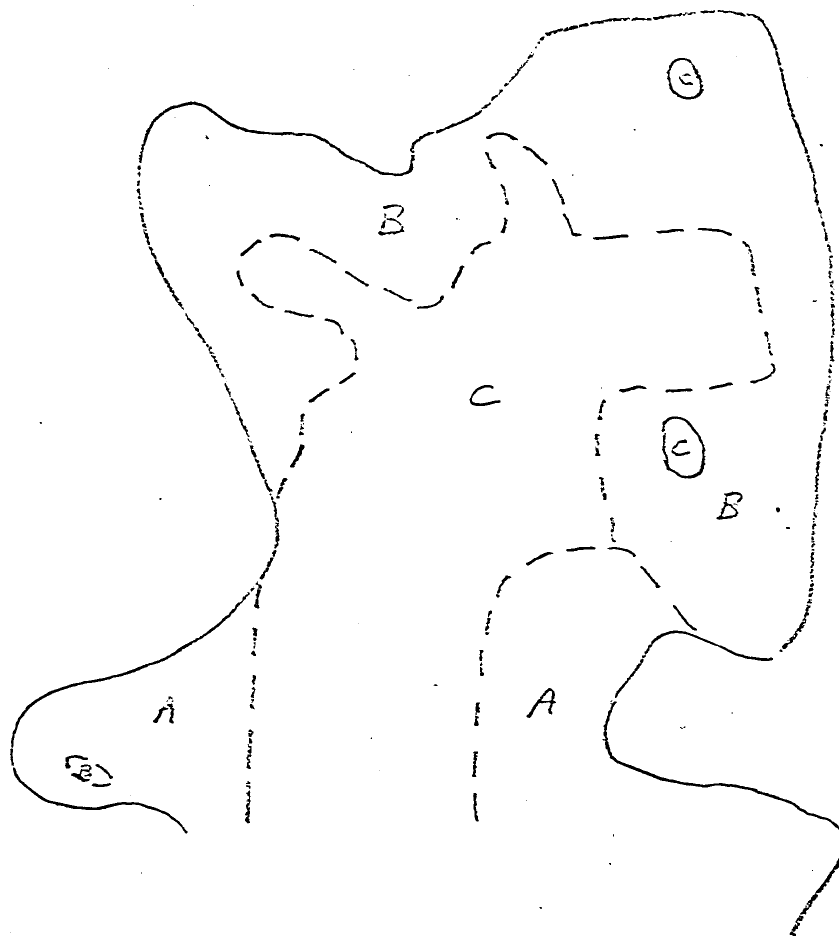
CIA/PID/MEB-P-185/65
ATTACHMENT TO:

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25X1

RADAR ARRAY "B2"
LAUNCH COMPLEX A
SSATC, USSR

PRELIMINARY ANALYSIS
OF
DENSITY CONTOURS



DENSITY GRADIENT

← LIGHTER
A — B — C
DARKER →

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SPOT WIDTH — 15 M
WEDGE DIAM. — 0.04
MAGNIFICATION — 1000 X

ATTACHMENT 6

TOP SECRET RUFF

CIA/PID/NEB-P-186/65
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